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REPORT ON SPECIAL ASSIGNMENT OF MAY 1, 1953

Or Manchuria - Berlin - Seattle Line

Question 1 (a) This is predicated on only such information as we have at hand. It is assumed that there is no automatic block signal system in operation and the antiquated system for blocking of trains, which consists of an outmoded staff system and the tablet system (which is more or less comparable to what was known in this country as the "token" system many years ago) necessitates all trains stopping at communicating points to pick up the staff or secure the tablet or token, and we must further assume that with no train dispatching system the operators, signalmen, or whatever they may be termed are located at all stations and sidings, which seem to average about six kilometers apart.

This would result in excessive stopping of all trains which would seriously interfere with their movement due to many of these stops being on the hard pulls.

With the light steel, excessive curvatures and gradients, both Lines "A" and "B" would be slow speed railroads. Nothing is said about the condition of ties or whether fully tie-plated, etc. However, we assume that ties are untreated and no doubt in poor condition. Ballast is also in poor condition if a large amount of sand is used with the gravel.

The maximum speed for both lines would be 25 MPH on tangent track, 15 to 20 MPH on curves, and with very little tangent and a continuous series of curves ranging from 2° to nearly 8° the average running time between stations could not be in excess of 8 to 10 MPH.

On a high speed double track railroad, automatic block signals in both directions, Diesel powered trains, sufficient crossovers, etc., with minimum gradient and curvature, it would be possible to operate an average of 24 to 28 trains in each direction -- while on the lines in question there is not one single feature that would tend to be conducive to expediting the movement of trains.

Taking all of the above into consideration we arrive at the following:

Line "A" (Double Track)

Maximum number of trains in each direction past a given point within a 24 hour period 18

Maximum number of trains that could be run daily over a long period.13

Maximum number of trains that could be run daily over a short period 16

There would be no appreciable difference between summer operation and sub-zero winter operation if line properly cleared of snow, cuts cleaned out and widened, etc. Trains would be operated with reduced tonnage depending on weather as indicated in 1 (b).

Line "A" (Single Track)

Maximum number of trains in each direction past a given point within a 24 hour period 13

Maximum number of trains that could be run daily over a long period.10

Maximum number of trains that could be run daily over a short period (One Week) 12

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Question 1 (a)
(Cont'd.)

Line "B"

Maximum number of trains in each direction past a given point within a 24 hour period 14

Maximum number of trains that could be run daily over a long period .. 11

Maximum number of trains that could be run daily over a short period (One Week) 13

Question 1 (b)

See attached blue print dated June 10, 1953. For unusual conditions such as heavy side or head winds, icy rail or motive power not functioning at 100% efficiency, the tonnages shown below and on the chart should be reduced by about 10%.

The maximum trailing tonnages at 10 MPH in mild weather with no allowances for curve resistances are as follows:

Engine	Line "A"	Line "A"	Line "B"
	Eastbound Trk. 1.70% Ruling Gr.	Westbound Trk. 1.66% Ruling Gr.	Both Directions 1.50% Ruling Gr.
2-8-2 Single	840 Tons	860 Tons	960 Tons
" Doublehead	1,670 "	1,710 "	1,910 "
" with 2-10-0 pusher	1,800 "	1,855 "	2,060 "
2-8-0 Single	880 Tons	900 Tons	1,000 Tons
" Doublehead	1,750 "	1,790 "	1,990 "
" with 2-10-0 pusher	1,845 "	1,895 "	2,100 "
2-10-0 Single	970 Tons	995 Tons	1,100 Tons
" Doublehead	1,930 "	1,980 "	2,190 "

In cold weather, tonnages should be reduced for all three engines by the following percentages:

Temperature	1.70% Ruling Gr.	1.66% Ruling Gr.	1.50% Ruling Gr.
Zero degrees	-14%	-14%	-15%
Minus 30 degrees	-26%	-26%	-28%
Minus 50 degrees	-40%	-40%	-42%

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TONNAGE RATINGS

2-5-2 Mikado

2-6-0 Consolidation

2-10-0 Decapod

For Speeds of 10 MPH and 40
Ton Average Unit Weight
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